

Amendment and Response

Applicant: Georg Georgakos

Serial No.: 10/766,689

Filed: January 28, 2004

Docket No.: I435.103.101/12869US

Title: STORAGE CAPACITOR WITH HIGH MEMORY CAPACITY AND LOW SURFACE

REMARKS

The following remarks are made in response to the Office Action mailed May 19, 2005. Claims 16-20 have been allowed. Claims 1-15 were rejected. With this Response, claims 1 and 13 have been amended. Claims 1-20 remain pending in the application.

In the Abstract

The Examiner objected to the Abstract for using legal phraseology. The Abstract has been amended to replace the word "comprising" with "include." Therefore, Applicant respectfully requests that the objection to the Abstract be removed.

Claim Rejections under 35 U.S.C. § 102

The Examiner rejected claims 1-3 and 8-12 under 35 U.S.C. § 102 as being anticipated by the Vathulya et al. U.S. Patent No. 6,297,524.

The Vathulya et al. patent does not teach or suggest the limitations of amended independent claim 1 of at least one first column shaped electrode including a stack of metal parts spaced at intervals from one another, and contact elements connecting respective pairs of the metal parts, and at least one second column shaped electrode including a stack of metal parts spaced at intervals from one another, and contact elements connecting respective pairs of metal parts.

The Vathulya et al. patent discloses capacitor structures for deep sub-micron complementary metal-oxide semiconductors (CMOS). The Vathulya et al. patent capacitor structure is formed by multiple levels of electrically conductive ring-shaped concentric lines connected between different levels by vias that define an array of concentric ring-shaped capacitor plates, such as disclosed at column 1, lines 26-32 and illustrated in Figures 2-4 and described in the corresponding text of the specification. The capacitor structure of the Vathulya et al. patent comprises a plurality of layers arranged at different levels and connected by vias, wherein the ring-shaped concentric lines are alternately connected to terminals of opposite polarities so that a capacitance is generated between adjacent plates of the array, such as disclosed at a column 3, lines 28-41 and column 6, lines 3-5 and correspondingly illustrated in

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Figure 3. As illustrated, levels L1 and L3 are connected to a first terminal A, and levels L2 and L4 are connected to a second terminal B having an opposite plurality.

By contrast, amended independent claim 1 includes first and second column shaped electrodes which each include a stack of metal parts spaced at intervals from one another, and contact elements connecting respective pairs of metal parts. The Vathulya et al. patent does not teach or suggest, such column shaped electrodes as defined in amended independent claim 1. Instead, the Vathulya et al. patent teaches a capacitor structure formed by multiple levels of electrically conductive ring-shaped concentric lines, as clearly illustrated in Figures 2 and 4.

In view of the above, amended independent claim 1 is not taught or suggested by the Vathulya et al. patent. In addition, dependent claims 2-3 and 8-12 further define patentably distinct amended independent claim 1. Therefore, these dependent claims are also believed to be allowable.

Therefore, Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. § 102 rejections to claims 1-3 and 8-12, and requests allowance of these claims.

Claim Rejections under 35 U.S.C. § 103

The Examiner rejected claims 4-7 under 35 U.S.C. § 103(a) as being unpatentable over the Vathulya et al. U.S. Patent No. 6,297,524.

The Examiner rejected claims 13-15 under 35 U.S.C. § 103(a) as being unpatentable over the Richter et al. Patent Application Publication No. U.S. 2002/0191455 and the Vathulya et al. patent.

Amended independent claim 13 includes limitations not taught or suggested by the combination of the Richter et al. patent application and the Vathulya et al. patent. These limitations of amended independent claim 13 include a plurality of memory cells for storage of information where each memory cell includes a storage capacitor including at least one first column shaped electrode that includes a stack of metal parts spaced at intervals from one another, and contact elements connecting respective pairs of metal parts, and at least one second column shaped electrode that includes a stack of metal parts spaced at intervals from one another, and contact elements connecting respective pairs of metal parts.

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As discussed above in the Remarks regarding the § 102 rejection of independent claim 1, the Vathulya et al. patent teaches a capacitor structure formed by multiple levels of electrically conductive ring-shaped concentric lines connected between different levels by vias that define an array of concentric ring-shaped capacitor plates. Thus, the Vathulya et al. patent does not teach the limitations of amended independent claim 13 of first and second column shaped electrodes that include a stack of metal parts spaced at intervals from one another, and contact elements connecting respective pairs of metal parts.

In view of the above, independent claim 13 is not taught or suggested by the combination of the Richter et al. patent application and the Vathulya et al. patent. Furthermore, dependent claims 4-7 further define patentably distinct amended independent claim 1, and dependent claims 14-15 further define patentably distinct amended independent claim 13. Therefore, these dependent claims are also believe to be allowable.

Therefore, Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejections to claims 4-7 and 13-15, and request allowance of these claims.

Allowable Subject Matter

Claims 16-20 are allowed.

CONCLUSION

In view of the above, Applicant respectfully submits that pending claims 1-20 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 1-15 in addition to allowed claims 16-20 is respectfully requested.

No fees are required under 37 C.F.R. 1.16(b)(c). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 50-0471.

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The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Respectfully submitted,

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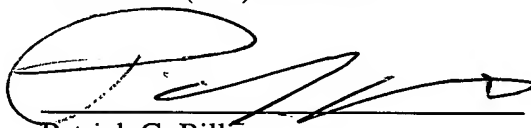
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CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope address to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 18 day of August, 2005.

By

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